UNITED STATES SIGNAL SERVICE

MONTHLY WEATHER REVIEW.

VOL. XV. WASHINGTON CITY, JULY, 1887. No. 7.

INTRODUCTION.

This REVIEW treats generally the meteorological conditions of the United States and Canada for July, 1887, and is based upon reports of regular and voluntary observers of both countries. Descriptions of the storms which occurred over the north Atlantic Ocean during the month are also given, and their approximate paths shown on chart i, on which also appears the distribution of icebergs and field ice reported. In tracing the centres of the paths of these storms, data from the reports of two hundred and twenty-seven vessels have been used. The storms which occurred over the ocean were rather evenly distributed throughout the month, and developed greatest energy to the eastward of the fortieth meridian; barometric pressure below 29.00 inches (762.0 mm.) being reported on two dates. There was an unusual prevalence of fog in the vicinity of Newfoundland, and the dotted shading on chart i shows the limits of the fog-belts to the westward of the fortieth meridian.

The average number of areas of low pressure for July during the last fourteen years is *nine*; on chart i for the present month are traced the paths of seven such areas, or two less than the average for July.

Over the central and northern portions of the country to the east of the Rocky Mountains the most noteworthy meteorological feature of this month is the unusually high mean temperature, the region of greatest excess of heat being the lower lake region and portions of the Ohio Valley and middle Atlantic states, where the temperature averaged from 4° to 7° above the normal. Chart v exhibits, for selected stations in the heated area, curves illustrating the current and normal temperatures of July, and will be found of especial interest, as this month over a large part of the country has been the warmest that has occurred since the establishment of Signal Service stations.

The monthly precipitation for the Atlantic coast and east Gulf states, extreme northwest, and for portions of the middle and southern Rocky Mountain districts, is generally in excess of the average; in the Lake region, central valleys, and west Gulf states it is below the average.

The very heavy rains near the close of the month in Georgia and South Carolina, caused a destructive freshet in the Savannah River, which at Augusta, Ga., was higher than has been known for more than twenty years. Local freshets in the smaller streams were numerous during the month in the states bordering on the Atlantic.

In the preparation of this REVIEW the following data, received up to August 20, 1887, have been used, viz., the regular tri-daily weather-charts, containing data of simultaneous observations taken at one hundred and thirty-three Signal Service stations and twenty-four Canadian stations, as telegraphed to this office; one hundred and sixty-seven monthly journals and one hundred and sixty-nine monthly means from the former and twenty-four monthly means from the latter; two hundred and sixty-nine monthly registers from voluntary observers; sixty monthly registers from United States Army post surgeons; marine records; international simultaneous observations; marine reports through the co-operation of the "New York Herald Weather Service;" abstracts of ships' logs furnished by the publishers of "The New York Maritime Register;" monthly weather reports from the local weather services of Arkansas, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New England, New Jersey, North Carolina, Ohio, Oregon, South Carolina, and Tennessee; and the Central Pacific Railway Company; trustworthy newspaper extracts, and special reports.

ATMOSPHERIC PRESSURE (expressed in inches and hundredths).

The distribution of mean pressure for July, 1887, determined from the tri-daily telegraphic observations of the Signal Service, is shown by isobarometric lines on chart ii. The area of maximum pressure for July is shown by the isobar of 30.1, and occupies the north Pacific coast; the area of minimum pressure covers portions of the southern and middle plateau districts, and is indicated by the isobar of 29.85. The mean pressure over all the districts to the east of the Rocky Mountains generally ranges between 29.9 and 30.0, being greater over the southern portions of the country than in the northern districts.

Compared with the mean pressure for the preceding month, an increase is shown along the south Atlantic and Gulf coasts, and over the entire country from the Mississippi River to the Pacific coast; the excess is more than .10 over nearly all of the Rocky Mountain region, and over portions of the middle and southern plateau districts it amounts to .15 or more. To the eastward of the Mississippi, north of the thirty-fifth parallel, the mean pressure for July is slightly below that for June, the deficiency being less than .05, except in the Saint Lawrence Valley, New England, and the Maritime Provinces of Canada, where it is .05, or slightly more.

The departures from the normal pressure for the various stations are given in the tables of miscellaneous meteorological data; they are also graphically exhibited on chart iv by lines connecting stations of normal or equal abnormal values. As will be seen from this chart the mean pressure for July is about normal over nearly the whole country; the maximum deficiency being .03, and the maximum excess, .06. The region over which a deficiency occurs extends from the Gulf of Mexico northward to the Lake region, Minnesota, and Dakota, while in all other districts the mean pressure is normal or slightly above.

BAROMETRIC RANGES.

The monthly barometric ranges at the various Signal Service stations are also given in the table of miscellaneous data. The following are some of the extremes:

Greatest.		Least.	
	Inch.		*Inch.*
Duluth, Minn	0.69	San Diego, Cal	0.22
Alpena, Mich	0.67	Key West, Fla	0.23
Boston, Mass	0.66	Cedar Keys, Fla	0.23
Mount Washington, N. H	0.65	Brownsville, Tex	0.25
New Haven, Conn	0.64	Rio Grande City, Tex	0.27
Marquette, Mich	0.63	Corpus Christi, Tex	0.27
Mackinaw City, Mich	0.62	Los Angeles, Cal	0.27